Message

From: Lindstrom, Andrew [Lindstrom.Andrew@epa.gov]
Sent: 10/20/2017 11:32:46 AM
To: Buckley, Timothy [Buckley.Timothy@epa.gov]; Strynar, Mark [Strynar.Mark@epa.gov]; McCord, James [mccord.james@epa.gov]
CC: Medina-Vera, Myriam [Medina-Vera.Myriam@epa.gov]; Biales, Adam [Biales.Adam@epa.gov]; Tong-Argao, Sania [Tong-Argao.Sania@epa.gov]
Subject: RE: Update
Attachments: 10-5-17 Chemours site visit samples.xlsx; Chemours FPS-IXM Process Schematic.pdf; Chemours NPDES Process Schematic.pdf

Tim,

I did review the results of the September 18 Chemours on-site visit and discussed these results with Mark. The calculations and data quality look acceptable.

(Please note that the table below refers to the results of the observation well monitoring effort. This report has already been sent to NCDEQ.)

I do want to point out something in these data that I think we need to understand. Please look at the highlighted portions of the spreadsheet I've attached above. I'm pointing out the ratio of the 001/002 concentration estimates. (I've also attached process schematics to help illustrate the overall operations at the plant).

Site 001 is the on-site WWTP effluent which has all the treated waste from the plant with a nominal flow of about 1M gallons a day. Site 002 is that same waste stream after it has received about 23 M gallons of noncontact process water, according to the data provided on the NPDES application. So all things being equal, you'd expect the 001 concentrations to be 23 times higher than the diluted 002 samples.

In these results we do see that the estimated 001 concentrations are always much higher than the 002 sample, but that ratios range from 2 to about 13, depending on the compound. We can't know what the ratio of WWTP effluent to noncontact process water actually was at the time of sampling, but it does look like there was significant dilution of the WWTP effluent in sample 002.

I'm troubled that this dilution ratio was not the same for all compounds. This indicates that the method used to estimate the Sun et al. PFAS concentrations is inconsistent, giving results that vary over an order of magnitude.

I think we knew this already, and I think James has other data that also make this point. I just want to note this inconsistency here because this is a place where we can do some more work to find out what's going on with this estimation process.

This is going to be very important now that Nafion has apparently been detected in private drinking water wells at least a mile from the facility:

http://www.fayobserver.com/news/20171019/private-well-test-near-chemours-plant-finds-15-contaminants

Thank you,

Andy

From: Buckley, Timothy
Sent: Thursday, October 19, 2017 11:18 AM
To: Strynar, Mark <Strynar.Mark@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>; Tong-Argao, Sania <Tong-Argao.Sania@epa.gov>
Subject: RE: Update

Andy,

Have you reviewed these results? Once you have, can you please forward to Sania for her review.

Tim

Timothy J. Buckley, PhD
Director of the Exposure Methods & Measurements Division
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Ex. 6 Personal Privacy (PP) C)

From: Strynar, Mark
Sent: Friday, October 13, 2017 3:20 PM
To: Buckley, Timothy <Buckley.Timothy@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>
Subject: RE: Update

Here is the table to 3 significant figures. I eliminated the Flags column. The samples were run once and not diluted and reran if the curve was exceeded unlike past assays. For the NTA work the dash indicates not detected. For the GenX targeted work the "*" indicated exceeded upper end of calibration curve.

Mark

From: Buckley, Timothy
Sent: Friday, October 13, 2017 2:08 PM
To: Strynar, Mark <Strynar.Mark@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>
Subject: RE: Update

Mark,

Do you think James would be able/willing to put this in spreadsheet format amenable to creating a Word table like we have previously used?

Tim

Table 3. PFAS Concentrations (ng/L)

n	Quantified Using Targeted Analysis											Quantified Using Non-Targeted Analysis				
	GenX	Legacy PFAS										PFMOAA	PFO2HxA	PFO3OA	PFESA BP1	PFESA BP2
		PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFBS	PFHxS	PFOS					
7	-	-	21.7	18.4	10.9	-	-	-	-	-	-	34.1	307.0	-	-	-
7	81.7	30.0	30.0	22.5	14.1	9.6	-	-	-	-	-	574	57.8	31.6	-	3,640
1	307*	-	-	-	-	-	-	-	-	-	-	327	78.6	10.6	-	68.0

1	19,100	162	224	19.5	36.7	60.9	-	-	-	-	-	23,500	5,090	1,630	-	6,060
1	17,100	161	251	18.8	39.7	63.3	-	-	-	-	-	26,500	4,680	1,440	-	5,270
1	26,700*	161	251	18.8	39.7	63.3	-	-	-	-	-	24,900	5,210	1,300	-	8,080
1	21,500	165	247	21.3	38.1	59.2	-	-	-	-	-	26,900	5,750	1,500	-	6,440
2	5,990	56.8	232	-	-	-	-	-	-	-	-	44,300	3,250	1,190	-	281
3	6,130	130	601*	-	11.5	-	-	-	-	-	-	108,000	5,420	1,380	-	168
4	9,720	328*	1,030	22.6	43.0	-	-	-	-	-	-	83,000	5,550	1,320	14.1	1,590
5	41,000*	385*	1,860	85.7	407*	-	-	-	-	-	-	285,000	21,200	13,500	-	3,810
5	6,540	105	239	14.3	33.8	70.7	19.7	-	-	-	-	24,400	1,680	590	-	6,860
1	1,520	11.1	20.3	-	-	10.5	-	-	-	-	-	1,500	242	119	-	635
	13,700	59.7	226	74.3	126	1,960	-	-	-	-	-	93,600	4,660	1,590	78.5	1,510
	22,700	447*	1,400	96.6	186	2,100	-	-	-	-	-	738,000	38,600	13,300	20,600	12,300
9	12,800	419*	273*	62.2	39.2	38.8	-	-	-	-	-	12,600	-	399	24,500	2,460
0	10.7	-	-	-	-	-	-	-	-	-	-	283	-	-	-	-
1	2,580	24.8	26.0	-	-	23.9	-	-	-	-	-	5,650	330	-	-	389
2	767	16.4	20.8	-	-	-	-	-	-	-	-	3,670	206	-	-	-

Flag Codes:

dash "-" = concentration below limit of detection of 10 ng/L
1 = Samples Diluted 25X
2 = Samples Diluted 50X
3 = Samples Diluted 100X
* = analyte outside range of calibration curve after dilution

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Ex. 6 Personal Privacy (PP)

From: Strynar, Mark
Sent: Thursday, October 12, 2017 10:08 AM
To: Buckley, Timothy <Buckley.Timothy@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>
Subject: RE: Update

Andy,

Please take a look at these when you get a chance. I ran these on the TOFMS to get GenX and the Nafion BP1, BP2 and the related PFECAS in one run rather than running the MS/MS and then TOFMS. In general the std curve is good from 25-1000 ng/L. The QCs (blank is blank, and the 250 and 1000 ng/L seem good). I did not calculate the replicate precision, however we had three samples replicate analyzed (Huske L&D, Chemours Old Waste Tributary, Chemours 001 discharge). They all seem like <20% for GenX analysis.

For 5 samples GenX was above the calibration curve (shown in red bold). Three samples exceeded the curve by 8-9x. The high QC exceeded the calibration curve similar to the two samples around 1,200 ng/L. None of these samples were reanalyzed with dilution. Concentrations above the calibration curve should be considered estimates for GenX.

For the other analytes (Nafion BP1, BP2, and the related compounds to GenX) estimations of concentrations were done by comparing the area ratio of the analyte to GenX and estimating concentration by multiplying by the measured GenX concentrations. This is how we did this estimation in past assays.

Give this a look and let me know what you see as soon as you can.

Thanks,
Mark

From: Buckley, Timothy
Sent: Thursday, October 12, 2017 8:28 AM
To: Strynar, Mark <Strynar.Mark@epa.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>
Cc: Medina-Vera, Myriam <Medina-Vera.Myriam@epa.gov>; Biales, Adam <Biales.Adam@epa.gov>
Subject: FW: Update

Where are we with these data?

Tim

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Ex. 6 Personal Privacy (PP)

From: Culpepper, Linda [mailto:linda.culpepper@ncdenr.gov]
Sent: Tuesday, October 10, 2017 1:56 PM
To: Buckley, Timothy <Buckley.Timothy@epa.gov>
Subject: Update

Hi Tim – any idea of when we would receive the data from the Chemours process area samples?

Thank you.

Linda Culpepper
Deputy Director

Division of Water Resources
North Carolina Department of Environmental Quality

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